

CLAIMS

1 A method of analysing a temperature indicating paint using a marker paint comprising applying an irreversible temperature indicating paint to a component of a machine, applying a marker paint to the component of the machine, the irreversible temperature indicating paint having one or more changes of colour at one or more known temperatures, these colour changes of the irreversible temperature indicating paint indicate the temperature to which different parts of the component have been subjected, the marker paint does not change colour, operating the machine for a predetermined period of time such that the component of the machine reaches its operating conditions, viewing the irreversible temperature indicating temperature paint and the marker paint on the component to produce an image of the component, analysing the image of the component to determine if any debris and/or dirt has deposited on the marker paint and to determine the amount of debris and/or dirt and analysing the image of the irreversible temperature indicating paint to determine the temperature at different regions of the component taking into account the amount of any debris and/or dirt deposited onto the marker paint.

2 A method as claimed in claim 1 comprising analysing that part of the image corresponding to the irreversible temperature indicating paint and determining the colours of the irreversible temperature indicating paint at different positions, allocating temperatures to the colours at the different positions from a store of the known colours for that particular irreversible temperature indicating paint.

3 A method as claimed in claim 1 comprising analysing the colour of that part of the image corresponding to the marker paint by comparing the colour of that part of the image corresponding to the marker paint with a stored colour of the marker paint to determine if there is a difference in colour.

4 A method as claimed in claim 3 comprising adjusting the temperature allocated to the different positions on the irreversible temperature indicating paint.

5 A method as claimed in claim 1 comprising viewing the component using a boroscope.

6 A method as claimed in claim 1 comprising viewing the component using a camera.

7 A method as claimed in claim 6 wherein the camera is a digital camera.

8 A method as claimed in claim 7 wherein the camera is a CCD camera.

9 A method as claimed in claim 1 comprising applying a plurality of irreversible temperature indicating paints to the component, each irreversible temperature indicating paint having changes of colour at different temperatures to each of the other irreversible temperature indicating paints.

10 A method as claimed in claim 1 comprising applying a plurality of marker paints, each marker paint having a different colour to each of the other marker paints.

11 A method as claimed in claim 1 wherein the machine comprises a gas turbine engine.

12 A method as claimed in claim 11 wherein the component is a turbine vane or a turbine blade.

13 A method as claimed in claim 1 comprising viewing the component while the component is in the machine.

14 A method as claimed in claim 1 wherein the marker paint comprises a pigment, a binder and a solvent, the pigment comprising cobalt titanium oxide, titanium nickel antimony oxide, cobalt aluminium oxide or cadmium sulphide selenium.

15 A method as claimed in claim 14 wherein the marker paint comprises 42wt% to 52wt% pigment, 31wt% to 37wt% acrylic resin and 17wt% to 21wt% silicone resin excluding solvent.

16 A method as claimed in claim 15 wherein the marker paint comprises 45wt% to 49wt% pigment, 32.5wt% to 35.5wt% acrylic resin and 18wt% to 20wt% silicone resin excluding solvent.

17 A method as claimed in claim 16 wherein the marker paint comprises 47wt% pigment, 34wt% acrylic resin and 19wt% silicone resin excluding solvent.

18 A method as claimed in claim 14 wherein the binder comprises acrylic resin and silicone resin.

19 A method as claimed in claim 18 wherein the acrylic resin comprises polybutyl methacrylate.

20 A method as claimed in claim 18 wherein the silicone resin comprises a high temperature silicone resin.

21 A method as claimed in claim 14 wherein the solvent comprises a mixture of propylene glycol ethers.

22 A method as claimed in claim 21 wherein the solvent comprises a mixture of 80% 1-methoxy-2-propanol and 20% dipropylene glycol monomethyl ether.

23 A marker paint comprising a pigment, a binder and a solvent, the pigment comprising cobalt titanium oxide, titanium nickel antimony oxide, cobalt aluminium oxide or cadmium sulphide selenium.

24 A marker paint as claimed in claim 23 comprising 42wt% to 52wt% pigment, 31wt% to 37wt% acrylic resin and 17wt% to 21wt% silicone resin excluding solvent.

25 A marker paint as claimed in claim 23 comprising 45wt% to 49wt% pigment, 32.5wt% to 35.5wt% acrylic resin and 18wt% to 20wt% silicone resin excluding solvent.

26 A marker paint as claimed in claim 23 comprising 47wt% pigment, 34wt% acrylic resin and 19wt% silicone resin excluding solvent.

27 A marker paint as claimed in claim 23 wherein the binder comprises acrylic resin and silicone resin.

28 A marker paint as claimed in claim 27 wherein the acrylic resin comprises polybutyl methacrylate.

29 A marker paint as claimed in claim 27 wherein the silicone resin comprises a high temperature silicone resin.

30 A marker paint as claimed in claim 23 wherein the solvent comprises a mixture of propylene glycol ethers.

31 A marker paint as claimed in claim 30 wherein the solvent comprises a mixture of 80% 1-methoxy-2-propanol and 20% dipropylene glycol monomethyl ether.